

ITW ✓

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent No. 6,943,590

Date Patented: September 13, 2005

Takashi KITAHARA

Serial No.: 10/699,777



Group Art Unit: 2816

Filing Date: November 4, 2003

Examiner: Wells, Kenneth B.

For: CLOCK MONITORING APPARATUS

Petition, Commissioner for Patents
Alexandria, VA 22313-1450

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~~Certificate~~ *AD*
~~OCT 04 2005~~
~~of Correction~~

PETITION UNDER 37 C.F.R. § 1.183

Sir:

Applicant respectfully notes that the assignee's name and address on the above-identified Patent was inadvertently (and without deceptive intent) identified incorrectly in item 5 of the Issue Fee Transmittal (PTOL-85B) as: **NEC Corporation, Tokyo, JAPAN**, instead of the correct assignee name of:

NEC Electronics Corporation, Kawasaki, Kanagawa, JAPAN.


Therefore, Applicant respectfully requests a waiver of 37 C.F.R. § 3.81(a), so that the patent may be corrected. A check for \$130.00 is submitted herewith to cover the petition fee under 37 C.F.R. § 1.17(h).

A Request for Certificate of Correction to correct the assignee's name and the associated fee also are submitted herewith.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: September 29, 2005


John J. Dresch, Esq.
Registration No. 46,672
Sean M. McGinn
Registration No. 34,386

**MCGINN INTELLECTUAL PROPERTY
LAW GROUP, PLLC**
8321 Old Courthouse Road, Suite 200
Vienna, Virginia 22182-3817
(703) 761-4100
Customer No. 21254

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent No. 6,943,590 B2

Date Patented: September 13, 2005

Takashi KITAHARA

Serial No.: 10/699,777

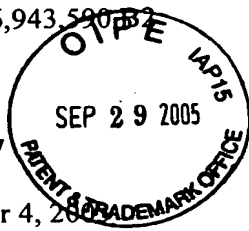
Group Art Unit: 2816

Filing Date: November 4, 2003

Examiner: Wells, Kenneth B.

For: **CLOCK MONITORING APPARATUS**

Assistant Commissioner for Patents
Alexandria, VA 22313-1450



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REQUEST FOR CERTIFICATE OF CORRECTION
UNDER 37 C.F.R. § 1.323

Sir:

Applicant respectfully submits that the above-identified patent is not correct and therefore respectfully requests an expedited Certificate of Correction. A check for \$100.00 is submitted herewith to cover the fee under 37 C.F.R. § 1.20(a) for the Certificate of Correction.

Applicant notes that the assignee's name on the PTOL-85B was inadvertently and without deceptive intent identified incorrectly as: **NEC Corporation, Tokyo, JAPAN**, instead of the correct assignee name of:

NEC Electronics Corporation, Kawasaki, Kanagawa, JAPAN.

Therefore, a Petition under 37 C.F.R. § 1.183 to waive the requirements of 37 C.F.R. § 3.81(a), and the associated petition fee of \$130.00 under 37 C.F.R. § 1.17(h) also are submitted herewith. Additionally, a Statement under 37 C.F.R. § 3.73(b) is attached.

In particular, it is requested that the Assignee of the invention be corrected to:

NEC Electronics Corporation, Kawasaki, Kanagawa, JAPAN,

as reflected in the Notice of Recordation of Assignment with a recordation date of February 28, 2003, on Reel/Frame: 013799/0677, filed in the parent application, U.S. Application No. 10/242,415 (now U.S. Patent No. 6,670,839, issued on December 30, 2003) from which the application of the above-identified Patent claims priority under 35 U.S.C. § 119.

U.S. Patent No. 6,943,590 B2
Issued September 13, 2005
Application Serial No. 10/699,777
Attorney Docket No. 283579/01 DIV
(NEC.250 DIV)

2

A copy of the Notice of Recordation of Assignment is enclosed, together with a copy of the Patent Assignment Abstract of Title from the U.S. Patent Office Patent Application Information Retrieval (PAIR) internet site, which shows the chain of title.

Also enclosed are copies of the Recordation Form Cover Sheet (form PTO 1595) filed on February 28, 2003, the Assignment from NEC Corporation to NEC Electronics Corporation, the Notice of Recordation of Assignment with a recordation date of September 13, 2002, on Reel/Frame: 013287/0421, filed in the parent application, the Recordation Form Cover Sheet (form PTO 1595) filed on September 13, 2002, and the Assignment of Application for Patent dated September 6, 2002 and filed on September 13, 2002, which show the chain of title.


A marked up copy of the cover page of the Patent also is enclosed for the Examiner's convenience.

Please forward a Certificate of Correction to the address shown below. If there are any questions on this matter, please direct all telephone calls to the number shown below.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: September 29, 2005


John J. Dresch, Esq.
Registration No. 46,672

Sean M. McGinn
Registration No. 34,386

**MCGINN INTELLECTUAL PROPERTY
LAW GROUP, PLLC**
8321 Old Courthouse Road, Suite 200
Vienna, Virginia 22182-3817
(703) 761-4100
Customer No. 21254

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,943,590 B2

DATED : September 13, 2005

INVENTOR(S) : Takahashi KITAHARA

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Please change [73] Assignee to:

—NEC Electronics Corporation, of Kawasaki, Kanagawa (JP)—

MAILING ADDRESS OF SENDER (Please do not use customer number

PATENT NO. 6,943,590 B2

No. of additional copies



Doc Code:

SEP 29 2005

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PTO/SB/96 (09-04)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Takashi KITAHARA

Application No./Patent No.: 10/699,777; USP 6,943,590 B2

Filed/Issue Date: Issued September 13, 2005

Entitled: **CLOCK MONITORING APPARATUS**

NEC Electronics Corporation

, a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title and interest.
The extent (by percentage) of its ownership interest is _____ %

in the patent application/patent identified above by virtue of either:

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

OR

- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

1. From: NEC Corporation To: NEC Electronics Corporation
The document was recorded in the United States Patent and Trademark Office at
Reel 013799, Frame 0677, or for which a copy thereof is attached.
2. From: Takashi Kitahara To: NEC Corporation
The document was recorded in the United States Patent and Trademark Office at
Reel 013287, Frame 0421, or for which a copy thereof is attached.
3. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

- ☐ Additional documents in the chain of title are listed on a supplemental sheet.

- ☒ Copies of assignments or other documents in the chain of title are attached.

[NOTE: A separate copy (i.e., a true copy of the original assignment document (s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be recorded in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.



Signature

John J. Dresch, Esq., Reg. No. 46,672

Printed or Typed Name

September 29, 2005

Date

703-761-4100

Telephone number

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETE D FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



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JULY 16, 2003

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Under Secretary of Commerce For Intellectual Property and
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Washington, DC 20231
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MCGINN & GIBB, PLLC
SEAN M. MCGINN, ESQ.
8321 OLD COURTHOUSE ROAD, SUITE 200
VIENNA, VA 22182-3817

NEC-250



102381522A

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 02/28/2003

REEL/FRAME: 013799/0677
NUMBER OF PAGES: 3

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:
NEC CORPORATION

DOC DATE: 11/01/2002

ASSIGNEE:
NEC ELECTRONICS CORPORATION
1753 SHIMONUMABE, NAKAHARA-KU
KAWASAKI, KANAGAWA, JAPAN 211-8668

SERIAL NUMBER: 10242415
PATENT NUMBER:

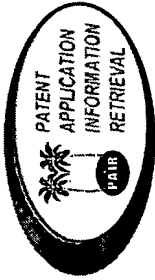
FILING DATE: 09/13/2002
ISSUE DATE:

MARCUS KIRK, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

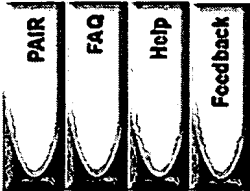


United States Patent and Trademark Office

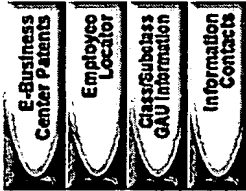
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PATENT APPLICATION INFORMATION RETRIEVAL



Other Links



Patent Assignment Abstract of Title

Total Assignments: 2
Application #: 10242415
PCT #: NONE
Inventor: Takashi Kitahara
Title: CLOCK MONITORING APPARATUS
Assignment: 1
Reel/Frame: 013287/0421
Received: 09/18/2002
Recorded: 09/13/2002
Mailed: 12/11/2002
Pages: 3
Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).
Assignor: KITAHARA, TAKASHI
Assignee: NEC CORPORATION
7-1, SHIBA 5-CHOME, MINATO-KU
TOKYO, JAPAN
Correspondent: MCGINN & GIBB, PLLC
SEAN M. MCGINN
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817
Assignment: 2
Reel/Frame: 013799/0677
Received: 03/05/2003
Recorded: 02/28/2003
Mailed: 07/16/2003
Pages: 3
Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).
Assignor: NEC CORPORATION
Assignee: NEC ELECTRONICS CORPORATION
1753 SHIMONUMABE, NAKAHARA-KU
KAWASAKI, KANAGAWA, JAPAN 211-8668
Correspondent: MCGINN & GIBB, PLLC
SEAN M. MCGINN, ESQ.
8321 OLD COURTHOUSE ROAD, SUITE 200
VIENNA, VA 22182-3817
Patent #: 6670839
Publication #: US20030052722
Issue Dt: 12/30/2003
Pub Dt: 03/20/2003
Exec Dt: 09/06/2002
Exec Dt: 11/01/2002

Disclaimer:

Assignment information on the assignment database reflects assignment documents that have been actually recorded. If the assignment for a patent was not recorded, the name of the assignee on the patent application publication or patent may be different. If you have any comments or questions concerning the data displayed, contact [OPR / Assignments at 703-308-9723](mailto:OPR_Assignments@703-308-9723)

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2-28-03P

03-05-2003

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To the Honorable Commissioner of Patents and

original documents or copy thereof.

1. Name of conveying party(ies):
NEC Corporation

102381522

2. Name and address of receiving party(ies):

Name: NEC Electronics Corporation

Address: 1753 Shimonumabe, Nakahara-ku

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OFFICE OF PETITIONS

City: Kawasaki

State/Prov.: Kanagawa

Country: JAPAN

ZIP: 211-8668

Additional names(s) of conveying party(ies)

☐ Yes ☒ No

3. Nature of conveyance:

☒ Assignment☐ Merger☐ Security Agreement☐ Change of Name☐ Other

Execution Date: November 1, 2002

Additional name(s) & address(es)

☐ Yes ☒ No

4. Application number(s) or patent numbers(s):

If this document is being filed together with a new application, the execution date of the application is:

Patent Application No.

Filing date

B. Patent No.(s)

10/242,415

September 13, 2002

Additional numbers

☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Sean M. McGinn, Esq.

Registration No. 34, 386

Address: McGinn & Gibb, PLLC

8321 Old Courthouse Road, Suite 200

City: Vienna

State/Prov.: VA

Country: USA

ZIP: 22182-3817

6. Total number of applications and patents involved:

1

7. Total fee (37 CFR 3.41):.....\$ 40.00

☒ Enclosed - Any excess or insufficiency should be credited or debited to deposit account☐ Authorized to be charged to deposit account

8. Deposit account number:

50-0481 (Deficiencies only)

(Attach duplicate copy of this page if paying by deposit account)

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9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Sean M. McGinn, Esq.

Name of Person Signing

Signature

February 28, 2003

Date

5

Total number of pages including cover sheet, attachments, and

Assignment

Whereas, NEC Corporation, a Japanese corporation, having a place of business at 7-1, Shiba 5-chome, Minato-ku, Tokyo, Japan, hereinafter called Assignor, is the owner and assignee of record of the pending applications listed on the attached Schedule A; and

Whereas, NEC Electronics Corporation, a Japanese corporation, having a place of business at 1753 Shimonumabe, Nakahara-ku, Kawasaki, Kanagawa 211-8668, Japan, hereinafter called Assignee, desires to acquire the Assignor's entire right, title, and interest in said applications listed on the attached Schedule A;

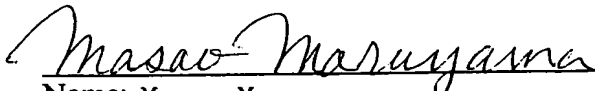
Now therefore, for valuable consideration, receipt whereof is hereby acknowledged;

Assignor hereby sells, assigns and transfers to Assignee, its successors and assigns, its entire right, title and interest including rights to recover for past infringement in the applications listed on the attached Schedule A;

IN WITNESS WHEREOF, Assignor has executed this Assignment by proper persons duly authorized.

NEC Corporation

Date: November 1, 2002



Name: Masao Maruyama

Title: Chief Manager

Planning Division

Intellectual Asset Operations Unit

Witness:

November 1, 2002
Date:



Name: Akira Muto



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DEC 25 2002

McGINN & GIBB, P.C.

DECEMBER 11, 2002

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RECORDATION DATE: 09/13/2002

REEL/FRAME: 013287/0421
NUMBER OF PAGES: 3

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:
KITAHARA, TAKASHI

DOC DATE: 09/06/2002

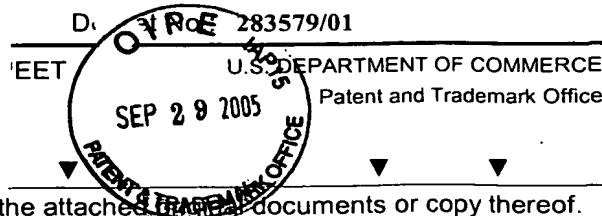
ASSIGNEE:
NEC CORPORATION
7-1, SHIBA 5-CHOME, MINATO-KU
TOKYO, JAPAN

SERIAL NUMBER: 10242415
PATENT NUMBER:

FILING DATE: 09/13/2002
ISSUE DATE:

SAUNDRA BALLENGER, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

09-18-2002



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102226040

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1. Name of conveying party(ies):

Takashi Kitahara

9-13-02

Additional names(s) of conveying party(ies)

☐ Yes ☒ No

3. Nature of conveyance:

☒ Assignment

☐ Merger

☐ Security Agreement

☐ Change of Name

☐ Other

Execution Date: September 6, 2002

2. Name and address of receiving party(ies):

Name: NEC Corporation

Address: 7-1, Shiba 5-chome

Minato-ku

City: Tokyo

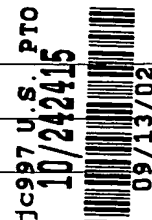
State/Prov.:

Country: Japan

ZIP:

Additional name(s) & address(es)

☐ Yes ☒ No



4. Application number(s) or patent numbers(s):

If this document is being filed together with a new application, the execution date of the application is: September 6, 2002

Patent Application No.

Filing date

B. Patent No.(s)

10/242415

Additional numbers

☐ Yes ☐ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Sean M. McGinn, Esq.

Registration No. 34,386

Address: McGinn & Gibb, PLLC

8321 Old Courthouse Road

Suite 200

City: Vienna

State/Prov.: Virginia

Country: USA

ZIP: 22182-3817

6. Total number of applications and patents involved:

1

7. Total fee (37 CFR 3.41):.....\$ 40.00

☒ Enclosed - Any excess or insufficiency should be credited or debited to deposit account

☐ Authorized to be charged to deposit account

8. Deposit account number:

50-0481

(Attach duplicate copy of this page if paying by deposit account)

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9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Sean M. McGinn, Esq.

Name of Person Signing

Signature

September 13, 2002

Date

Total number of pages including cover sheet, attachments, and

Mail documents to be recorded with required cover sheet information to:
Commissioner of Patents & Trademarks, Box Assignments
Washington, D.C. 20231

09/16/2002 FFAHAEIA 00000064 10242415

92 FC:581

40.00 DP

ASSIGNMENT OF APPLICATION FOR PATENT

WHEREAS : TAKASHI KITAHARA
c/o NEC Micro Systems, Ltd.,
403-53, Kosugimachi 1-chome, Nakahara-ku,
Kawasaki-shi, Kanagawa, Japan

NAME AND ADDRESS
OF ASSIGNOR

(HEREINAFTER REFERRED TO AS ASSIGNOR), have invented and
own a certain new and useful invention entitled:

TITLE OF INVENTION:

CLOCK MONITORING APPARATUS

FULL NAME AND ADDRESS
OF ASSIGNEE

WHEREAS : NEC Corporation
7-1, Shiba 5-chome, Minato-ku,
Tokyo, Japan

(hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire
right, title, and interest in, to and under said invention and the United States
Letters Patent to be obtained therefor:

NOW THEREFORE, TO ALL WHOM IT MAY CONCERN: Be
it known that in consideration of the payment of ASSIGNEE to
ASSIGNOR of the sum of One Dollar (\$1.00), the receipt of which is
hereby acknowledged, and for other good and valuable consideration,
ASSIGNOR, by these presents, hereby sells, assigns and transfers to
ASSIGNEE the entire and exclusive right, title and interest to said
invention and all Letters Patent of the United States to be obtained therefor
on said application or any continuation, division, renewal, substitute or
reissue thereof for the full term or terms for which the same may be
granted.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents
and Trademarks to issue said Letters Patent of the
United States Patent obtained therefor on said application or any

continuation, division, renewal, substit or reissue thereof for the full term or terms to said ASSIGNEE, of the entire right, title, and interest in and to the same, for his sole use and behoof, and for the use and behoof of his legal representatives, to the full end of the term or terms for which said Letters Patent obtained therefor on said application or any continuation, division, renewal, substitute or reissue thereof for may be granted, as full and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

ASSIGNOR hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment and sale;

ASSIGNOR further covenants that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said application, said invention and said Letters Patent as may be known and accessible to ASSIGNOR and will testify as to the same in any interference or litigation related thereto and will promptly execute and deliver to ASSIGNEE or its legal representative any and all papers, instruments or affidavits required to apply for, obtain, maintain and enforce said application, said invention and said Letters Patent which may be necessary or desirable to carry out the purposes hereof.

DATE OF SIGNING

IN WITNESS WHEREOF, I/We have hereunto set

hand and seal this 6th day of September, 2002.

SIGNATURE

By: Takashi Kitahara (北原)
TAKASHI KITAHARA

SIGNATURE

By: _____

SIGNATURE

By: _____

SIGNATURE

By: _____

SIGNATURE

By: _____

SIGNATURE

By: _____

SIGNATURE

By: _____

WITNESSES

Nitashi Ukeni
[Signature]



US006943590B2

(12) **United States Patent**
Kitahara

(10) **Patent No.:** **US 6,943,590 B2**
(45) **Date of Patent:** **Sep. 13, 2005**

(54) **CLOCK MONITORING APPARATUS**

(75) Inventor: **Takashi Kitahara, Kanagawa (JP)**
NEC Electronics Corporation,
(73) Assignee: ~~NEC Corporation, Tokyo (JP)~~
Kawasaki, Kanagawa (JP)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/699,777**

(22) Filed: **Nov. 4, 2003**

(65) **Prior Publication Data**

US 2004/0090245 A1 May 13, 2004

Related U.S. Application Data

(62) Division of application No. 10/242,415, filed on Sep. 13, 2002, now Pat. No. 6,670,839.

(30) **Foreign Application Priority Data**

Sep. 18, 2001 (JP) 2001/283579

(51) Int. Cl.⁷ **G01R 19/00**

(52) U.S. Cl. **327/18; 327/292; 713/500;**
713/502; 714/2; 714/34; 714/744

(58) Field of Search **327/292, 18; 714/797,**
714/814, 817, 2, 34, 744; 713/500-503

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,653,054 A * 3/1987 Liu et al. 714/814
5,642,069 A 6/1997 Waite 327/292
5,969,558 A 10/1999 Abe 327/292
6,343,334 B1 * 1/2002 Uemura et al. 710/8
6,670,839 B2 * 12/2003 Kitahara 327/292

FOREIGN PATENT DOCUMENTS

JP 7-006155 1/1995

* cited by examiner

Primary Examiner—Kenneth B. Wells

(74) Attorney, Agent, or Firm—McGinn & Gibb, PLLC

(57) **ABSTRACT**

A clock monitoring apparatus according to the invention including a main clock monitoring portion including a first counter for counting a main clock, issuing a normal operation confirming flag indicating that a normal operation is being carried out when the first counter is overflowed or reaches a previously determined set value, monitoring the normal operation confirming flag by a sub clock, issuing a first main clock stop flag having an output in correspondence with H (high level)/L (low level) of the normal operation confirming flag and a main clock initializing signal for initializing the main clock when the main clock is determined to stop and resetting the first main clock stop flag when the main clock is recovered by receiving the main clock initializing signal, and a sub clock switching control portion including a second counter for counting a signal output produced by calculating a logical sum of the sub clock and the first main clock stop flag at fall of the sub clock at a time point of generating the first main clock stop flag, switching to a sub clock operation by issuing a sub clock switching signal when the second counter output is overflowed or reaches a previously determined set value and resetting the second counter output when the main clock is recovered and a second main clock stop flag produced by inverting the first main clock stop flag and delaying the sub clock by a predetermined period by a main clock monitoring portion, is reset.

20 Claims, 12 Drawing Sheets

